

REQUEST FOR RECONSIDERATION

Claims 7-18 remain active in this application.

The claimed invention is directed a process for preparing a mixture of polyols comprising at least one graft polyol.

Graft polyols have been used in the preparation of polyurethane foams. Mixtures of graft polyols with unfilled polyols have been formed in order to adapt the polyol to the desired requirements, but have been found to produce polyurethanes of inadequate quality. Process for mixtures of polyols comprising a graft polyol which provides for good quality polyurethane foams are sought.

The claimed invention addresses this problem by providing a process for preparing mixtures of polyols in which at least one graft polyol and a second polyol are mixed by a **continuous mixing process**, after polyol preparation but before polyurethane preparation. Applicants have discovered that mixing of prepared polyols **by a continuous mixing process** prior to polyurethane preparation to provide for polyurethane foams of good quality. Such a process, polyol mixture, polyurethane forming process or polyurethane are nowhere disclosed or suggested in the cited art of record.

The rejections of claims 7-8 and 10-12 under 35 U.S.C. §103(a) over Lennslag et al. U.S. 6,433,034, of claims 7, 9 and 14-15 under 35 U.S.C. §103(a) over Blum et al. U.S. 5,331,039 and of claims 11 and 16-18 under 35 U.S.C. §103(a) over Lennslag et al. in view of Hofmann et al U. S. 6,670,406 are respectfully traversed.

None of the cited art of record discloses or suggests enhanced foaming performance or mechanical properties resulting from using a continuous mixing process for mixing of polyols.

Each of the primary references are identified as disclosing mixing polyol components in batches, wherein the examiner asserts that it would have been obvious to use a continuous

process, motivated by the desire to create a homogenous mixture of polyols (page 3 of official action).

In spite of the deficiency of the cited art to disclose or suggest a continuous mixing process (e.g. a claim limitation) the cited art of record fails to suggest any enhancement of foaming and mechanical properties resulting from using a continuous mixing process.

The examiner's attention is directed to the data appearing on page 9, Table 1 of applicants' specification. For the examiner's convenience the data is reproduced below:

TABLE 1

| | | Example | | | |
|---|-------------------|-------------------------------|--------------------------|-------------------------------|---|
| | | 1 | 1 comp | 2 | 2 comp |
| Cell opening | | OK | pronounced | OK | very pronounced |
| Sedimentation | % | 1.0 | 1.5 | 1.0 | 2.5 |
| Visual assessment of foam | | uniformly fine cell structure | non-uniformly fine-pored | uniformly fine cell structure | unsatisfactory cell structure, small cracks |
| <u>Test results</u> | | | | | |
| Envelope density | kg/m ³ | 27.4 | 27.2 | 28.3 | 27.6 |
| <u>Indentation resistance B</u> | | | | | |
| at 25% compression | N | 187 | 189 | 203 | 238 |
| at 40% compression | N | 260 | 261 | 291 | 328 |
| at 65% compression | N | 504 | 508 | 563 | 654 |
| Compressive strength at 40% compression | kPa | 4.5 | 4.5 | 5.2 | 5.6 |
| Tensile strength | kPa | 143 | 121 | 145 | 122 |
| Elongation at break | % | 185 | 177 | 170 | 138 |
| Compression set | % | 2.5 | 1.8 | 2.5 | 1.4 |
| Rebound resilience | % | 49.7 | 49.2 | 47.7 | 47.3 |
| Air permeability | mmWS | 5 | 12 | 7 | 22 |

comp—comparative example

Example 1 and comparative example 1 as well as example 2 and comparative example 2 are two pairs of otherwise identical polyurethane compositions, differing in the use of continuous mixing verses batchwise metering into the mixing head.

The samples prepared using batch wise introduction into the mixing head exhibited at least pronounced cell opening and non-uniform foam structure. Further, the properties of

tensile strength, elongation at break, compression set, rebound resilience and air permeability were all reduced.

In contrast, examples 1 and 2, prepared using a Fluitec CSE-X static mixer displayed uniformly fine cell structure and enhanced tensile strength, elongation at break, compression set, rebound resilience and air permeability relative to the batchwise prepared polyurethane. Such a result is not suggested in the cited art of record.

Further, while page 3 of the official action cites as motivation for using continuous mixing, the desire to create a homogeneous mixture of polyols, applicants note that according to Leenslag et al and Blum et al, batchwise mixing of the polyols is performed. Thus, the issue is not the difference between mixing and not mixing, but rather using continuous mixing versus batchwise mixing. Applicants' demonstration of enhanced foaming and mechanical properties is offered in rebuttal to any *prima facie* case of obviousness.

As the cited references fail to suggest an enhancement of properties resulting from preparation of a mixture of polyols a continuous mixing process, the claimed invention is not rendered obvious by the cited references and accordingly, withdrawal of the rejections under 35 U.S.C. 103(a) is respectfully requested.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Richard L. Chinn, Ph.D.
Attorney of Record
Registration No. 34,305

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)